

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A compound for producing a heat-ray cutoff film, ~~which comprises~~ a dispersion sol including conductive nanoparticles uniformly dispersed in an ~~amphoterie~~ amphiphilic solvent.
2. (Currently Amended) The compound according to claim 1, wherein the conductive nanoparticles include at least one of ATO, ITO, and AZO.
3. (Currently Amended) The compound according to claim 1, wherein the conductive nanoparticles have ~~is sized in diameters~~ under 200 nm ~~and in the range of 1-80 wt%, while, and~~ and the ~~amphoterie~~ amphiphilic solvent ~~has~~ is present in a range of 20 ~ 99 wt % relative to the dispersion sol.
4. (Currently Amended) The compound according to claim 3, wherein the ~~amphoterie~~ amphiphilic solvent includes ethylene glycol monomethyl ether, ethylene glycol monoethyl ether, ethylene glycol monopropyl ether, or ethylene glycol monobutyl ether.
5. (Original) The compound according to claim 1, which further comprises an acid for adjusting surface charges of the conductive nanoparticles, the acid including an organic acid, an inorganic acid, or polymeric acid.
6. (Currently Amended) The compound according to claim 5, wherein the conductive nanoparticles are ~~is an~~ ATO nanoparticles containing ~~Sb with~~ 5 ~ 20 wt % Sb, and the acid is present in a ~~included with the range of~~ $5 \times 10^{-4} \sim 3.5 \times 10^{-3}$ g ~~to the~~

~~conductive nanoparticle.~~

7. (Previously Presented) The compound according to claim 1, which further comprises a dispersing agent for stabilizing the conductive nanoparticles.

8. (Currently Amended) The compound according to claim 7, wherein the dispersing agent is present in a range of~~included with~~ 1 ~ 30 wt % relative to the dispersion sol~~conductive nanoparticle~~, while the dispersing agent includes a dispersing agent containing an amine radical, a dispersing agent containing an acid radical, or a neutral dispersing agent.

9. (Currently Amended) The compound according to claim 7, which further comprises a more one-resin binder selected from~~among~~ an anti-hydrolic resin binder, ~~and~~ a hydrolic resin binder, or an alcoholic resin binder.

10. (Currently Amended) The compound according to claim 9, wherein the resin binder is present in a~~the~~ range of 1 ~ 95 wt % relative to the compound.

11. (Currently Amended) The compound according to claim 10, wherein:
the hydrolic resin binder is selected from~~includes~~ a water-soluble alkyd, a polyvinylalcohol, a polybutylalcohol, an acrylic, an acrylstyrene, or a super-acid vinyl;
the alcoholic resin binder is selected from~~includes~~ a polyvinylbutyral or a polyvinylacetal; and
the anti-hydrolic resin binder is~~includes~~ a heat-hardening resin binder or an

ultraviolet-hardening resin binder, the heat-hardening resin binder selected from
~~including an acrylic, a polycarbonate, a polychloride vinyl, an urethane, a melamine,~~
~~an alkyd, a polyester, or an epoxy, and the~~ or an ultraviolet-hardening resin binder
selected from ~~including an epoxy acrylate, a polyether acrylate, a polyester~~
~~acrylate, or an urethane-metamorphosed acrylate.~~

12. (Currently Amended) The compound according to claim 9, wherein the
conductive nanoparticles have is sized in diameters under 200 nm ~~and in the range of~~
~~1 ~ 80 wt%, while, and~~ the amphoteric-amphiphilic solvent has is present in a range of
20 ~ 99 wt % relative to the dispersion sol.

13. (Currently Amended) The compound according to claim 12, wherein the
~~amphoteric~~ amphiphilic solvent includes ethylene glycol monomethyl ether, ethylene
glycol monoethyl ether, ethylene glycol monopropyl ether, or ethylene glycol monobutyl
ether.

14. (Currently Amended) The compound according to claim 12, wherein the
conductive nanoparticles are is an ATO nanoparticles containing Sb ~~with~~ 5 ~ 20 wt %
Sb, and the acid is present in a ~~included with the range of~~ $5 \times 10^{-4} \sim 3.5 \times 10^{-3}$ g ~~to the~~
~~conductive nanoparticle.~~

15. (Currently Amended) The compound according to claim 12, wherein the
dispersing agent is present in a range of ~~included with~~ 1 ~ 30 wt % relative to the
dispersion sol ~~conductive nanoparticle, while the dispersing agent includes~~ a
dispersing agent containing an amine radical, a dispersing agent containing an acid

radical, or a neutral dispersing agent.

16. (Currently Amended) A method of forming a compound for producing a heat-ray cutoff film, ~~which comprises~~ uniformly dispersing conductive nanoparticles ~~uniformly~~ in an ~~amphoterie~~ amphiphilic solvent.

17. (Currently Amended) The method according to claim 16, wherein the conductive nanoparticles have ~~is sized in diameters~~ under 200 nm ~~and in the range of 1 ~ 80 wt%, while, and~~ the ~~amphoterie~~ amphiphilic solvent ~~has~~ is present in a range of 20 ~ 99 wt_% relative to the dispersion sol.

18. (Currently Amended) The method according to claim 16, wherein the conductive nanoparticles are dispersed in the ~~amphoterie~~ amphiphilic solvent by means of a dispersing agent and ~~at least more one among acids to adjust surface charges of the conductive nanoparticles~~ are adjusted with an acid.

19. (Currently Amended) The method according to claim 18, wherein:
_____ the conductive nanoparticles are ~~is an~~ ATO nanoparticles containing Sb ~~with 5 ~ 20 wt_% Sb;~~
_____ the acid is present in a ~~included with the range of~~ $5 \times 10^{-4} \sim 3.5 \times 10^{-3}$ g ~~to the conductive nanoparticle;~~ and
_____ the dispersing agent is present in a range of ~~included with~~ 1 ~ 30 wt_% relative to the dispersion sol ~~conductive nanoparticle~~, and the dispersing agent includes a dispersing agent containing an amine radical, a dispersing agent containing an acid radical, or a neutral dispersing agent.

20. (Currently Amended) A method of forming a heat-ray cutoff film,
comprising ~~the steps of:~~

mixing the compound formed by the method of ~~defined in claim 19~~ with a one
~~more resin binders among~~ selected from an anti-hydrolic resin binder, ~~and a hydrolic~~
resin binder, or an alcoholic resin binder to obtain a mixed composite; and

depositing the mixed composite on a substrate and hardening the deposited
composite with ~~by~~ a chemical ray using ~~an~~ ultraviolet radiation, ~~or~~ an electronic ray,
or ~~by~~ heat.

21. (Currently Amended) The method according to claim 20, wherein the resin
binder ~~has~~ is present in a range of 1 ~ 95 wt % relative to the compound.

22. (Currently Amended) The method according to claim 20, wherein:
the substrate comprises ~~is an alternative one of~~ glass, a ceramic, a plastic, a
metal, and a product of these; ~~formers,~~ and
the mixed composite compound including the resin binder is processed is
formed in a plastic condition under at a temperature of about 50 [[~]] to 500°C.

23. (Currently Amended) The method according to claim 20, wherein the
substrate is a polycarbonate-series resin, a poly (metha) acrylylest[[h]]er-series resin, a
saturated fatty acid, or a cyclo-olefin resin, ~~and~~ the substrate hardened by ~~an~~
ultraviolet radiation.

24. (Currently Amended) The method according to claim 23, wherein the

substrate is exposed to ultraviolet radiation ~~is irradiated~~ in the range of 500 ~ 1500 mJ/cm, while the substrate is conveyed at a ~~and the hardening proceeds in the~~ velocity of 15 ~ 50 m/min.

25. (Original) A heat-ray cutoff film manufactured by the method as defined in claim 18.

26. (Currently Amended) A heat-ray cutoff film manufactured by the method[[s]] as defined claim 19.

27. (Currently Amended) The heat-ray cutoff film according to claim 26, wherein the film has a surface resistance of ~~10⁶ Ω/□~~ 1 x 10⁶ Ω·cm.

28. (Currently Amended) The heat-ray cutoff film according to claim 26, wherein the film has a thickness of less than ~~under~~ 5 μm, a pencil intensity above 1H, a visible light transmittance above 50%, and a heat-ray cutoff rate of 50%.

29. (Currently Amended) A method of screening heat rays, comprising:
~~by attaching a~~ the heat-ray cutoff film on a vessel ~~containing drinking water,~~
the heat-ray cutoff film formed from a dispersion sol including an amphiphilic solvent
~~preventing the heat rays from going in and out of the vessel to retain temperature of~~
~~the drinking water.~~

30. (Currently Amended) A method of screening heat rays with a heat-ray cutoff film, ~~comprising the steps of:~~

forming a compound including a dispersion sol with~~by uniformly dispersing~~
conductive nanoparticles uniformly dispersed in an ~~amphoterie-amphiphilic~~ solvent;

mixing the compound with a one more resin binder~~[[s]]~~ selected from among an
anti-hydrolic resin binder, and a hydrolic resin binder, or an alcoholic resin binder to
obtain a mixed composite;

depositing the mixed composite ~~of the compound and resin binder~~ on a substrate
and ~~then forming the heat-ray cutoff film by hardening the deposited composite with~~
~~by a chemical ray using an ultraviolet radiation, or an electronic ray, or by heat to~~
form the heat-ray cutoff film; and

coating the heat~~[[r]]~~-ray cutoff film on a surface of a vessel ~~containing a content~~.

31. (Currently Amended) The method according to claim 30, wherein the
conductive nanoparticles have is sized in diameters under 200 nm ~~and in the range of~~
~~1 ~ 80 wt%, while, and~~ the amphoteric-amphiphilic solvent has is present in a range of
20 ~ 99 wt % relative to the dispersion sol.

32. (Currently Amended) The method according to claim 30, wherein the
conductive nanoparticles are dispersed in the ~~amphoterie-amphiphilic~~ solvent by
means of a dispersing agent and ~~at least more one among acids to adjust surface~~
charges of the conductive nanoparticles are adjusted with an acid.

33. (Currently Amended) The method according to claim 32, wherein:
the conductive nanoparticles are is an ATO nanoparticles containing Sb ~~with 5~~
~ 20 wt % Sb;
the acid is present in a ~~included with the range of~~ $5 \times 10^{-4} \sim 3.5 \times 10^{-3}$ g ~~to the~~

~~conductive nanoparticle;~~ and

the dispersing agent is present in a range of ~~included with~~ 1 ~ 30 wt_% relative
to the dispersion sol ~~conductive nanoparticle~~, and the dispersing agent includes a
dispersing agent containing an amine radical, a dispersing agent containing an acid
radical, or a neutral dispersing agent.

34. (Currently Amended) The method according to claim 30, wherein the resin
binder is present in a range of ~~has~~ 1 ~ 95 wt_% relative to the compound.

35. (Currently Amended) The method according to claim 30, wherein the
substrate is a polycarbonate-series resin, a poly (metha) acrylylest[[h]]er-series resin, a
saturated fatty acid, or a cyclo-olefin resin, and the substrate hardened by ~~an~~
ultraviolet radiation.

36. (Original) The method according to claim 30, wherein the vessel is made of a
metal, a ceramic, or a plastic, containing drinking waters or foods.